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22 January 1963

MEMORANDUM FOR: Assistant Director, OSA

SUBJECT : Real Time Computer Requirement

1. I wish to thank you for the opportunity to be briefed on the special projects in your Office. Your staff's presentation last Friday was lucid and stimulating. I reflected on the briefing and have developed some candid impressions which I wish to record for you. My comments are based on several fundamental assumptions:

- a. That the DCI has authority and responsibility for the direction of Projects CORONA and OXCART.
- b. That Project Headquarters must therefore be in full command and direct control of all vehicles during a mission.
- c. That maximum back-up must be provided on the ground to ensure absolute control and an ability to cope with emergency situations.

If the foregoing assumptions are valid, then it is inescapable that OSA will need to plan on building an electronic data processing (EDP) real time ground support system on a scale far beyond that which is presently contemplated.

2. EDP machines are vital because the volume of data with which the headquarters commander must deal during a mission is so great, the interrelations so complex, and the speed of events occur so fast, that the data could not possibly be correlated on the ground reliably and rapidly enough by any other means. Only the computer can provide the commander with an array of information - in real time - as things are happening - and display it in a usable form that will permit him to react, introduce human judgment, and thus control and influence the outcome of the mission.

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3. Some of your data considerations that strike me as being interdependent are:

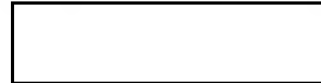
- a. Dynamic weather inputs from WECEN.
- b. Flight path and trajectory data - orbital and other.
- c. Target weights, priorities, and locations.
- d. Calculation of critical, optimum flight path.
- e. Camera orientation and burst times.
- f. Navigation mathematics.
- g. Rendezvous and refueling options.
- h. Communication resources available.
- i. Calculation of alternate routings.
- j. Vehicle performance characteristics.
- k. Display needs of headquarters.

4. With conventional aircraft it is standard to interrelate some of the above information by using static tables that exist for this purpose. However, in our case, the dynamics of the situation represent a critical requirement that can be satisfied only by means of real time electronic data processing.

5. CORONA and OXCART schedules are such that to achieve an electronic command and control capability in time will take a special effort. Just how this is to be done depends on your measure of the importance and value of creating such a capability where it should be located (Base or Headquarters), who should run it (contractor or Agency), or if the Air Force should be requested to provide the DCI with this capability as a service.

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6. Computer machines which operate in real time are expensive and large-scale. A great deal of preparation and lead time is required for computer programming and associated mathematical analysis before the machines can be used. If it were decided to bring one into the Agency's Computing Center then we probably would give up other smaller computers, now on the premises, and absorb their work into the new machine during the times it stood idle.

7. To be certain that we see each other's view in the same perspective I would welcome the chance to sit down and talk this over further with you and your staff. Meanwhile, I am releasing two ADPS computer programmers and one key punch operator, on loan to OSA, to assist in getting your minimum EDP effort underway.

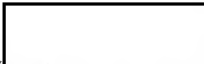


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Chief, Automatic Data Processing Staff, DD/S

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ADPS-DD/S:



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